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DEVELOPMENT OF A PATIENT CHARTING SYSTEM TO TEACH FAMILY PRACTICE RESIDENTS DISEASE MANAGEMENT AND PREVENTIVE CARE

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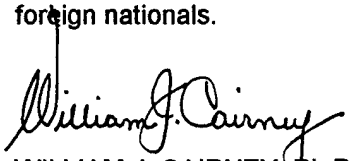

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The patient chart can serve as an excellent teaching tool for family practice residents. Designing notes which "prompt" residents to gather patient information vital to optimal care can teach residents the concepts of longitudinal care, particularly chronic disease management and preventive care. Specialized notes developed for specific diseases can teach residents how to manage that particular disease and teach residents how to address issues such as co-morbid diseases and reduction of risk factors for end-organ disease. Notes designed for specific patient populations can help residents address issues important to that population as a whole and reinforce concepts of managed care. Specialized patient information sheets can assist in providing feedback to residents regarding their care. These sheets summarize medical conditions, patient habits, and provide a means of tracking preventive screenings and interventions. Computerized patient assessment forms, such as depression or anxiety scales, can provide the resident with additional tools for measuring patient response to treatment. Utilization of such a charting system can help residents incorporate the concepts of longitudinal care into family medicine

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Specialized patient information sheets can assist in providing feedback to residents regarding their care. These sheets summarize medical conditions, patient habits, and provide a means of tracking preventive screenings and interventions. Computerized patient assessment forms, such as depression or anxiety scales, can provide the resident with additional tools for measuring patient response to treatment. Utilization of such a charting system can help residents incorporate the concepts of longitudinal care and patient management into the daily practice of family medicine.

Development of a Patient Charting System to Teach Family Practice Residents Disease Management and Preventive Care

Introduction:

In 1990 the Colorado Springs Osteopathic Foundation developed a specialized patient note to aid in the care of patients with HIV disease. The note addressed such issues as presence of opportunistic infections, systemic effects of disease (i.e., weight loss, fatigue) and social issues such as family support and advanced directives. These notes not only proved to improve patient care, but they provided an excellent teaching tool for our family practice residents. Subsequently we re-designed our charting system to help teach our residents chronic disease management and preventive care. Following is a discussion of the charting system we have developed to date to aid in resident education.

Objectives

In developing a new charting system to serve as a teaching tool for family practice residents, four objectives were identified as central to the framework for this system: 1) The sytem should encourage the development of longitudinal care concepts; 2) The system should encourage the development of preventive medicine skills; 3) The system should provide a means of providing feedback to residents as to their medical interventions; and 4) The system should provide a means of measuring patient progress.

Longitudinal care concepts

Teaching family practice residents longitudinal care can be difficult to achieve, especially for those residents whose previous training has taken place primarily in a hospital setting. Care in the hospital tends to involve acute problems with the endpoint of treatment occurring usually in one to two weeks. Longitudinal care on the other hand, usually involves chronic disease management or preventive care, with care being provided over months or years. Whereas, hospital-based residents can immediately see how their interventions can

reduce premature morbidity and mortality, such feed-back in an outpatient setting is much more difficult to measure. One means to measure medical intervention effectiveness is to measure those parameters which indirectly reflect overall health. These include the patient's functional status, measurement of various organ function, and overall feeling of well-being.

To encourage residents to follow these indirect parameters of health, we devised patient notes which 'prompt' the resident to address these parameters. For example, historical review of the hypertensive patient includes a review of exercise tolerance and presence of anginal symptoms (see hypertensive note). The physical examination involves assessment of the organs affected by hypertension - the eyes, kidneys and cardiovascular system. By identifying the effect the patient's hypertension has on these organs, one can see how medical interventions may slow or prevent disabling or life-threatening events such as stroke or heart attack.

Preventive care concepts

Preventive care consists of primary prevention and secondary prevention. Primary preventive interventions include vaccination programs, diet and exercise counseling, and patient education as to healthy lifestyle habits. Secondary prevention, which consists of early detection of disease, includes periodic cancer screenings, identification of patient risk factors for disease, and routine health screenings (i.e., cholesterol and diabetes screens health, physical examinations).

To help family practice residents to become familiar with these principles notes were designed to again 'prompt' residents to address these issues. These prompts were placed in routine notes (i.e., those developed for hypertension, diabetes) and in specialized physical forms (see annual physical form). Prompts in routine notes were directed at assessing co-morbid risk factors, habits, and symptoms and signs of early disease states related to the patient's primary disease state. Specialized physical forms were designed to be more comprehensive in nature. They were designed to review all patient risk factors, all

medical histories and a general assessment of health and the presence of disease. By focusing notes on these preventive areas residents have learned to apply these principles to all levels of patient care.

Providing Resident Feedback for Medical Care Interventions

Whereas specialized notes prompted residents in preventive care and disease management, they did not provide a readily accessible means to measure patient response to this care. To provide resident feedback, we developed a patient summary form for the front of each patient chart (see Patient Information sheet). This sheet was designed to aid in monitoring preventive screens and end-organ function as well as record chronic disease states residents should be aware of at all patients visits. In addition it lists patient habits such as smoking to remind residents to counsel patients to quit smoking.

Computerization of chronic disease states has also encouraged primary care research. Residents are now able to identify all clinic patients with a similar disease or medical problem and review their response to various therapies. To date, residents have designed interventional programs to improve hormone replacement in appropriate patients, improve the diagnosis and treatment of depression, and improve prevention of diabetic nephropathy.

Evaluating patient progress

The computer's ability to store multiple forms allowed us to develop support forms for patient notes. In particular we have computerized a number of patient health assessment forms, including the Zung depression test, the Karnofsky scale and a modified Conner scale for attention deficit disorder. These scales help the resident become familiar with concepts of overall health and well-being while providing a means of measuring patient response to treatment. We have designed the forms to be printed from the computer and to store patient results on the computer so that a patient summary report can be generated.

Methods

Although patient notes can serve as an effective teaching tool, it would be difficult to design a patient note for every potential patient presentation. To make this problem more manageable we decided to create two major categories for specialized notes: 1) notes for common disease states seen in our practice; and 2) general notes for family practice patient populations: pediatrics, adolescents, adults, and geriatrics.

Notes designed to concentrate on a particular disease state have been criticized for creating 'tunnel vision' on the part of the resident physician. Focusing in on one particular problem may cause the treating physician to ignore important social issues or overlook the treatment of co-morbid illness. These notes maybe helpful, however, in one of two clinical situations. First, for the new resident who has had little exposure to longitudinal health care, these notes help the resident learn the concepts of disease management. Notes that address multiple problems and complex social issues can be overwhelming to the new resident and overshadow basic care concepts. In addition, these specialized disease notes help residents learn or review diagnostic criteria. (See depression note.) Secondly, for patients with one primary disease state, particularly in those where it has been difficult to control, focused disease notes can be an effective patient management and resident educational tool.

Notes designed for patient populations are more complex and reflect more than one medical or social issues. (See pediatric note.) These notes reflect universal concerns such as growth and development, general function, and overall well-being. In these notes multiple problems and social issues can be addressed at one time.

Designing an Inexpensive Specialized Patient Note System

We could not afford to place a computer in each examination room or designate one computer to each clinic provider. Originally, standardized notes were printed on tablets of paper and torn off and placed in the chart at the time of the patient's visit. Although quite inexpensive to initiate, it soon became cumbersome to have separate pads for all of our patient visit types. In addition, this system did not allow us to store patient information for research purposes.

A compromise was decided upon by which one computer was placed in the nurses' triage area. Each patient is brought into the triage room prior to their encounter with the physician. Patient vitals are taken and the patient's medical chart is brought up on the computer. Computerized patient information including current medications, allergies and chronic medical problems are printed on a specialized note selected as appropriate for the patient's visit. The note is then placed in the patient's chart to assist in the doctor's visit. The Window's-based program Access 2.0 was chosen as the database program used in the development of this computerized system. It was relatively inexpensive and clinic staff could be taught how to modify the program to meet changing resident and patient needs. This system has allowed us to store multiple specialized notes in an accessible and space-saving manner, while facilitating computerization of medical information to encourage primary care medical research.

Summary

Patient charts can serve as a valuable teaching tool to family practice residents. For residents whose previous training has taken place primarily in an in-patient setting, specialized patient notes can help residents learn the basic concepts of chronic disease management and preventive care. These notes

"prompt" residents into obtaining patient information critical to preventing premature mortality and morbidity.

Specialized notes can also teach residents how to provide comprehensive family practice care to patients with multiple medical and social problems. These notes focus in on patient functional status, organ system function and general well-being, parameters which provide a means of 'connecting' multiple medical issues. The patient can then be seen as a whole person rather than as a series of diseases.

Centralization of patient flow charts designed to track patient outcome parameters can help facilitate positive feedback for physician interventions and provide a means to encourage primary care research. Resident physicians can track outcome measurements over a period of time and devise interventional strategies to improve outcome. By reorganizing patient charting systems residents can expand their educational resources while improving the level of care they provide their patients.